

INDIANA RAILROAD DERAILMENT PROJECT
SULLIVAN COUNTY, INDIANA

FILE: Redwing/09-048/Figures/Wetland

REDWING PROJECT 09-048

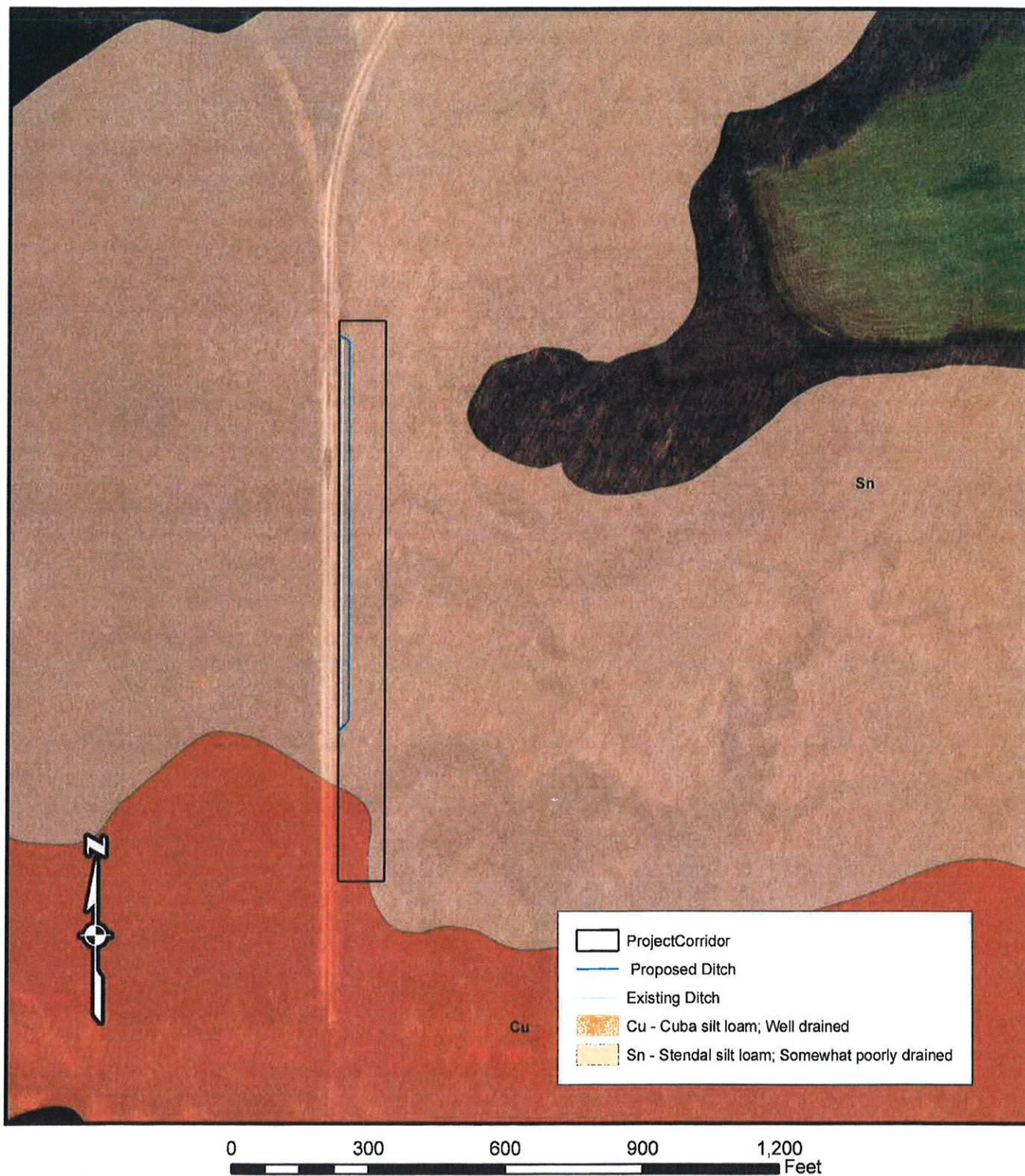
REVISED DATE 9.1.10

DRAWN BY BJO



WETLAND MAP

FIGURE 3



INDIANA RAILROAD DERAILMENT PROJECT
SULLIVAN COUNTY, INDIANA

FILE: Redwing/09-048/Figures/Soil

REDWING PROJECT 09-048

REVISED DATE 8.30.10

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SOIL SURVEY MAP

FIGURE 4

MITIGATION PLAN

The goal of this mitigation plan is to compensate for the temporal loss of forested wetland functions in the project area. The proposed relocation will result in no net loss of ephemeral stream or wetland habitat. Specific mitigation objectives include: 1) to restore a diverse forested wetland habitat in the disturbed project area; and 2) to maintain stability over any exposed/impacted surface areas in the relocated stream and restored wooded wetland. The plan's reliance on existing natural features and wetland conditions makes it viable with a high likelihood for success. Proposed compensation for the unavoidable temporal impacts to jurisdictional wooded wetlands will be provided through forested wetland restoration activities that include a combination of groundcover seeding and tree/shrub planting as outlined below.

GROUNDCOVER SEEDING

Construction activity will involve clearing of vegetation from an approximately 20-foot wide corridor of forested wetland along the existing railroad ditch. Topsoil (upper four to six inches) will be removed and stockpiled. The new stream channel will be excavated, and the material will be placed directly in the existing stream. Once excavation and grading are complete, topsoil will be placed on the surface of the former stream to an elevation that matches existing adjacent forested wetlands. Following completion of construction activities and final topsoil placement, the exposed soil surfaces will be seeded with a native groundcover seed mix at a rate of 50 pounds per acre. An additional 50 pounds per acre of an annual cover species such as annual rye or oats will also be planted to promote rapid vegetation establishment and stabilization of the site. The groundcover seed mix will include a minimum of ten species from the following list.

If the seed cannot be drilled, the following steps will be undertaken for broadcast seeding. The exposed surface will be disked to prepare a loose seed bed prior to seeding. Following seeding, the site will be rolled with a cultipacker to promote seed/soil contact. The site will then be mulched with clean straw and crimped to hold the mulch in place. If necessary due to site or weather conditions, erosion control matting may be used to stabilize the new stream channel sideslopes.

Scientific Name	Common Name	Wetland Status ¹
<i>Alisma subcordatum</i>	Water Plantain	OBL
<i>Alopecurus pratensis</i>	Meadow Foxtail	FACW
<i>Aster puniceus</i>	Purple-Stemmed Aster	OBL
<i>Bidens frondosa</i>	Beggar Ticks	FACW
<i>Carex comosa</i>	Bristly Sedge	OBL
<i>Carex crinita</i>	Fringed Sedge	OBL
<i>Carex lupulina</i>	Hop Sedge	OBL
<i>Carex vulpinoidea</i>	Fox Sedge	OBL
<i>Chelone glabra</i>	Turtlehead	OBL
<i>Elymus riparius</i>	Riverbank Wild Rye	FACW
<i>Elymus virginicus</i>	Virginia Wild Rye	FACW-
<i>Eupatorium perfoliatum</i>	Common Boneset	FACW
<i>Glyceria striata</i>	Fowl Manna Grass	OBL
<i>Helenium autumnale</i>	Sneezeweed	FACW
<i>Juncus effusus</i>	Soft Rush	FACW
<i>Leersia oryzoides</i>	Rice Cutgrass	OBL
<i>Ludwigia alternifolia</i>	Seedbox	FACW
<i>Mimulus ringens</i>	Monkey Flower	OBL
<i>Poa palustris</i>	Fowl Bluegrass	FACW
<i>Scirpus acutus</i>	Hard-Stem Bulrush	OBL
<i>Scirpus atrovirens</i>	Green Bulrush	OBL
<i>Scirpus cyperinus</i>	Wool Grass	FACW
<i>Scirpus validus</i>	Soft-Stem Bulrush	OBL
<i>Solidago gigantea</i>	Smooth Goldenrod	FACW
<i>Solidago patula</i>	Rough-Leaved Goldenrod	OBL
<i>Solidago riddellii</i>	Riddell's Goldenrod	OBL
<i>Sparganium eurycarpum</i>	Giant Bur-Reed	OBL
<i>Verbena hastata</i>	Blue Vervain	FACW
<i>Vernonia noveboracensis</i>	New York Ironweed	FACW

¹ FACW = Facultative wetland; OBL = Obligate wetland (Reed, 1988)

Stream relocation and follow-up restoration activities will be initiated in the first appropriate season following approval of the required permits. Grading/construction activities will be scheduled to coincide with drier conditions (likely late summer or fall). Seeding of native groundcover will be accomplished immediately after completion of grading activities.

No evidence of the invasive exotic species reed canary grass (*Phalaris arundinacea*), common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), or narrow-leaved cattail (*Typha angustifolia*) were observed on site. Measures to avoid importing exotic species include using topsoil present at the site (not importing from other unknown wetland sites that could have exotic species root stocks or seeds) and purchasing seed mixtures and live seedlings from reputable native species nurseries that control for exotics in their seed mixes and packing materials.

TREE/SHRUB PLANTING

Following the completion of construction activities and groundcover seeding, native three-gallon RPM (Root Production Method) containerized trees will be planted across the filled former stream area at a rate of 100 stems per acre. A minimum of six species will be selected from the following list, and will include at least four canopy tree species and two non-canopy tree or shrub species. Other native species may be substituted based on availability. Tree/shrub planting will be completed in the dormant season (December to March).

Scientific Name	Common Name	Growth Habit	Wetland Status ¹
<i>Acer rubrum</i>	Red Maple	Non-Canopy Tree	FAC
<i>Aesculus glabra</i>	Ohio Buckeye	Non-Canopy Tree	FAC
<i>Amorpha fruticosa</i>	Indigobush	Shrub	FACW
<i>Asimina triloba</i>	Common Paw Paw	Non-Canopy Tree	FAC
<i>Betula nigra</i>	River Birch	Non-Canopy Tree	FACW
<i>Carpinus caroliniana</i>	Ironwood	Non-Canopy Tree	FAC
<i>Carya laciniosa</i>	Shellbark Hickory	Canopy Tree	FACW
<i>Cornus racemosa</i>	Gray Dogwood	Shrub	FACW
<i>Nyssa sylvatica</i>	Black Gum	Canopy Tree	FAC
<i>Physocarpus opulifolius</i>	Common Ninebark	Shrub	FACW
<i>Quercus bicolor</i>	Swamp White Oak	Canopy Tree	FACW
<i>Quercus lyrata</i>	Overcup Oak	Canopy Tree	OBL
<i>Quercus michauxii</i>	Swamp Chestnut Oak	Canopy Tree	FACW
<i>Quercus palustris</i>	Pin Oak	Canopy Tree	FACW
<i>Quercus shumardii</i>	Shumard Oak	Canopy Tree	FACW
<i>Sambucus canadensis</i>	Elderberry	Shrub	FACW

¹FAC = Facultative; FACW = Facultative wetland; OBL = Obligate wetland (Reed, 1988)

REVISED PROJECT DRAWINGS

The permit deficiency letter indicates that design drawings must be submitted on 8.5 x 11 inch sheets. The original Site Plan Drawings have been reduced in size and are attached. They can be provided electronically if required.

SUMMARY

The proposed project will result in the relocation of an ephemeral stream to contain contamination, as part of a required remedial action approved by IDEM hazardous waste and emergency response personnel. Temporal impacts to forested wetland will occur; however, no net loss of jurisdictional area will occur. Approximately 800 feet (0.37 acre) of an existing ephemeral stream will be relocated approximately 20 feet east through an approximately 0.36-acre cleared forested

wetland corridor. As compensation for this impact, forested wetland habitat will be re-established on the former stream following construction through a combination of native groundcover seeding, and native wetland tree/shrub planting.

We trust that this additional information will allow you to proceed with review and issuance of Section 401 water quality certification for the project. Please contact Ron Thomas of Redwing at (502) 625-3009 or Tim DeWitt of August Mack at (317) 916-3161 with any questions regarding this addendum or the overall project.